

Virginia State Corporation Commission  
eFiling CASE Document Cover Sheet

Case Number (if already assigned) PUE-2015-00040

Case Name (if known)

Document Type APLA

Document Description Summary Application of Appalachian Power Company for approval of an experimental rider for the purchase of non-dispatchable renewable energy

Total Number of Pages 28

Submission ID 9213

eFiling Date Stamp 4/17/2015 3:47:41PM

15042005



HUNTON & WILLIAMS LLP  
RIVERFRONT PLAZA, EAST TOWER  
951 EAST BYRD STREET  
RICHMOND, VIRGINIA 23219-4074

TEL 804 • 788 • 8200  
FAX 804 • 788 • 8218

NOELLE J. COATES  
DIRECT DIAL: 804-788-8718  
EMAIL: NCoates@hunton.com

FILE NO: 21054.194

April 17, 2015

**BY ELECTRONIC FILING**

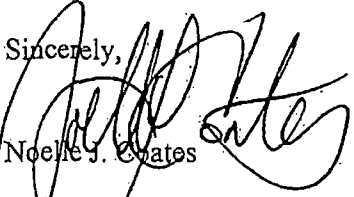
Hon. Joel H. Peck, Clerk  
State Corporation Commission  
Document Control Center  
Tyler Building - First Floor  
1300 East Main Street  
Richmond, Virginia 23219

**Application of  
Appalachian Power Company  
for approval of an experimental rider  
for the purchase of non-dispatchable  
renewable energy  
Case No. PUE-2015-00040**

Dear Mr. Peck:

Please find attached for electronic filing the Application of Appalachian Power Company for approval of an experimental rider for the purchase of non-dispatchable renewable energy.

Sincerely,

  
Noelle J. Coates

Enclosure

cc: William H. Chambliss, Esq.  
C. Meade Browder, Jr., Esq.  
James R. Bacha, Esq.  
Mr. William K. Castle

ATLANTA AUSTIN BANGKOK BEIJING BRUSSELS CHARLOTTE DALLAS HOUSTON LONDON LOS ANGELES  
McLEAN MIAMI NEW YORK NORFOLK RALEIGH RICHMOND SAN FRANCISCO TOKYO WASHINGTON

www.hunton.com

150420035

COMMONWEALTH OF VIRGINIA  
STATE CORPORATION COMMISSION

APPLICATION OF )  
APPALACHIAN POWER COMPANY )  
for approval of an experimental rider )  
for the purchase of non-dispatchable )  
renewable energy )

Case No. PUE-2015-000470

APPALACHIAN POWER COMPANY'S APPLICATION FOR APPROVAL OF AN  
EXPERIMENTAL RIDER R.G.P.

Appalachian Power Company ("Appalachian," "APCo" or "Company"), by counsel, respectfully petitions the State Corporation Commission for approval of Experimental Rider R.G.P. (the "Rider R.G.P." or "Rider"), which is part of the Company's Renewable Generation Purchase Program ("RGP Program"). Under this voluntary program, a customer can purchase non-dispatchable renewable energy generated by a facility, located on or adjacent to its property, that is owned and operated by a third party. The RGP Program will help the Company address its customers' interests in purchasing non-dispatchable renewable energy and will provide the Company the opportunity to gather valuable information about the impact of intermittent distributed generation on its system. In support of this Application, the Company respectfully states as follows:

**I. THE APPLICANT AND WITNESSES IN SUPPORT OF APPLICATION**

Appalachian is a Virginia public service corporation serving approximately 524,000 customers in Virginia and maintaining an office at 1051 East Cary Street, Suite 1100, Richmond, Virginia 23219. The Company is an incumbent electric utility as defined in the Virginia Electric Utility Regulation Act that serves customers in a service territory located in Southwest Virginia. The contact information for Appalachian's attorneys is stated at the end of this Application. The following witnesses submit testimony in support of this Application:

- *William K. Castle*, Appalachian's Director of Regulatory Services VA/TN, provides an overview of the RGP Program and explains the reason why Appalachian is pursuing it and what the Company hopes to gain through it.

- *Jennifer B. Sebastian*, Regulatory Consultant Principal VA/TN for Appalachian, describes in detail Rider R.G.P., and sponsors the rate design and billing process proposed in the Rider.

## II. THE RGP PROGRAM

The RGP Program is a new initiative that will enable certain of Appalachian's non-residential customers to purchase non-dispatchable renewable energy generated by developers in Appalachian's service territory. Appalachian designed the RGP Program with three fundamental goals in mind:

- to allow these customers to purchase electricity from non-dispatchable renewable generation facilities owned and operated by third parties located on or adjacent to the customers' property;
- to do so while minimizing the cost impact to customers that do not participate in the RGP Program; and
- to gather information about the impact of these types of facilities on the APCo system and about the success of alternative rate structures.

The RGP Program will allow Appalachian's customers to purchase energy generated from a renewable generating facility located on or adjacent to the customer's property but that is owned and/or operated by a third party. This option is currently not available to Appalachian's customers. Appalachian's customers can purchase 100% renewable energy from licensed competitive suppliers and Appalachian's Renewable Power Rider allows customers to purchase renewable energy in fixed blocks or in amounts equivalent to their monthly energy consumption, but neither option provides customers with the option of purchasing energy generated from renewable resources, owned by third parties, located on or adjacent to their properties.

Under the RGP Program, Appalachian will buy the energy and capacity from the facility ("Output") that is owned and operated by a third party developer ("Developer") that generates non-dispatchable energy from renewable resources ("Facility") and then will charge that same amount to the participating customer ("Customer"). As set out in the Rider, the Customer will continue to purchase all of its energy and capacity requirements pursuant to its Standard Schedule, but will receive

a market-based credit, the Renewable Output Credit, which is described in more detail below. In addition, the Company, the Developer and the Customer will execute a power purchase and sale agreement ("PPA"), which will establish the rate that Appalachian pays the Developer, and the Customer pays Appalachian, for the Output ("Negotiated Rate"). These arrangements will substantially avoid the subsidization of participating Customers by non-participating customers by requiring participating Customers to continue to pay their respective share for distribution, transmission, and generation services, through their Standard Schedule.

The RGP Program will provide additional opportunities for the Company to gather information on the impact of non-dispatchable renewable generation on its distribution system, its transmission systems and on near by substations. The Company will monitor how the Rider R.G.P. performs, and its impact on Appalachian and its customers. This information will help the Company to make informed decisions in the future as it navigates the changing landscape of the energy industry.

**A. Rider R.G.P.**

Rider R.G.P. (attached to the testimony of Company witness Sebastian as APCo Exhibit No\_\_ (JBS) Schedule 1 will establish the obligations of the Customer to Appalachian, and vice versa, under the RGP Program.

**1. Availability and Parameters**

The Rider is available to all of Appalachian's non-residential customers with an aggregate load between 250 kW and 2,000 kW. Appalachian will close the Rider to new entrants on or after June 1, 2017 or when the Facilities participating under the Rider total 25 MW, whichever occurs first. The Facility must be located on the same property where Customer is located or on land that is adjacent to the Customer's property.

The size of each individual Facility must be no greater than the Customer's load, as measured during the previous 12 months, which will avoid the need to upgrade distribution infrastructure to

accommodate the Facility. The Facility must have a nameplate capacity between 250 kW and 2,000 kW. A non-profit higher education customer can aggregate its load from multiple meters to determine an allowable size for the Facility. Appalachian is offering the aggregation option only to these customers, given the way they have expanded over time and their interest in renewable power. Moreover, by limiting the number of customers that can aggregate meters under the Rider, Appalachian will be able to evaluate the experience and effects of meter aggregation.

## 2. Rider R.G.P. Billing

Rider R.G.P. requires that the Customer continues to purchase all of its energy and capacity needs from Appalachian under its existing Standard Schedule and that the Customer pay Appalachian an amount equal to the amount that Appalachian pays the Developer for the Output pursuant to the PPA. These two amounts, which will appear on separate lines on the Customer's bill, will be partially offset by the Renewable Output Credit, a market-based credit for the Facility Output that Appalachian will apply to each bill. Thus, the Customer's bill will consist of three elements: service under the Standard Schedule, charges equal to the Company's cost pursuant to the PPA, and the Renewable Output Credit. Company witness Sebastian provides a sample bill that demonstrates how a bill for a participating Customer would likely look under the Rider.<sup>1</sup>

The Renewable Output Credit, which is described in more detail by Company witness Sebastian in her testimony, is designed to approximate the market-based pricing the Facility would experience if the Output were sold into the PJM market. To accomplish this, the Company designed the Renewable Output Credit so that it is comprised of the following three components:

---

<sup>1</sup> See APCo Exhibit No. \_\_ (JBS) Schedule 2.

- An energy credit that is equal to the hourly energy Output in kWh, as measured by an interval meter, multiplied by the applicable hourly Real-Time Locational Marginal Price at the Appalachian pricing point in PJM Interconnection, LLC ("PJM").<sup>2</sup>
- A generation capacity credit to reflect the Facility's impact on the Company's generation capacity requirements in PJM. The Customer is credited for the generation capacity requirement that is offset because of the Facility's contribution at the time of the PJM peaks.
- A transmission capacity credit to reflect the Facility's impact on the Company's allocated PJM transmission costs for the most recently completed calendar year.

The Renewable Output Credit will vary each month, and the Customer assumes the risk that it could be lower than the Negotiated Rate, which would result in a net increase to the Customer's bill. In contrast, when the Renewable Output Credit exceeds the Negotiated Rate, the Customer will see a net reduction to its bill.

### 3. Additional Responsibilities of Customer

In addition to paying Appalachian for the costs for the Output and for its usage under its Standard Service Schedule, the Customer is responsible for the incremental costs of the interval meters that must be installed to measure the Output, communications equipment, and any other facility or equipment necessary for the implementation of the RGP Program. Customers will also be responsible for a monthly program charge of \$30 to provide an offset to the Company's billing, administrative and communication costs related to the implementation and administration of the Rider. The amount of the monthly program charge is similar to the charge to Appalachian's customers that take service pursuant to the Company's Commission-approved Schedule Cogen/SPP.

### 4. Relationship to Other Company Programs

Rider R.G.P. is separate and distinct from the Company's Schedule Cogen/SPP and its net metering rider, Rider N.M.<sup>3</sup> These two programs are designed for customers that own or lease

---

<sup>2</sup> The Company reserves the right to amend the Rider to reduce the energy credit by applicable Real Time Balancing Operating Reserve Charges. These charges are allocated by PJM to loads and supply resources that deviate in real-time operations from their day-ahead schedules.

<sup>3</sup> Appalachian will not count the Customers and Facilities that participate in the RGP Program towards the Company's net metering cap established by Va. Code § 56-594.E.

generation facilities, in contrast to Rider R.G.P. The Customer can participate in Appalachian's other voluntary programs.

#### **B. The PPA**

The PPA will establish the terms of the relationship between Appalachian, the Developer and the Customer.<sup>4</sup> Pursuant to its terms, the Developer agrees to sell all the Output to Appalachian; Appalachian agrees to buy all the Output from the Developer; and the Customer agrees to pay Appalachian an amount equal to the amount that Appalachian pays the Developer for the Output. The price for the Output will be the Negotiated Price, which will be determined by the Developer and the Customer and will be memorialized in the PPA. The PPA will govern other aspects of the relationship among the three parties, including each party's obligations and responsibilities, limitations on liability, and provisions regarding the PPA's termination for reasons of default. The terms of the PPA must be agreeable to Appalachian, but Appalachian will not unreasonably withhold its approval.

#### **C. Appalachian's Cost Recovery**

Appalachian will recover the costs of the Rider, chiefly the Renewable Output Credits, through its fuel factor, as the costs it will incur are related to market costs. That is, the energy credits that comprise the Renewable Output Credit are comparable in nature and amount to the costs that the Company would have incurred to purchase energy in the PJM Market. The Company will not seek to recover any administrative costs associated with the RGP Program that exceed the monthly program charge through the fuel factor.

### **III. RIDER R.G.P. IS JUST AND REASONABLE AND IN THE PUBLIC INTEREST**

The Commission should find Rider R.G.P. to be just and reasonable.<sup>5</sup> This Application and the supporting testimony of Company witnesses Castle and Sebastian establish that the Rider is clearly just and reasonable. It is carefully designed so that one Customer's participation in the Rider minimizes

---

<sup>4</sup> Appalachian has developed a standard agreement that it will use for each transaction.

<sup>5</sup> Va. Code § 56-234.



any shift in costs to other customers. The Rider, as part of the overall RGP Program, thereby addresses concerns from consumer advocates and others in the industry that other programs that allow customers to purchase energy from third parties cause an unfair shift of the responsibility for fixed costs to non-participants. At the same time, the Rider and the RGP Program will allow Appalachian to address its customers' interests in purchasing non-dispatchable renewable energy generated by facilities owned and operated by third parties and located on the customers' property.

The Rider and the RGP Program, if successful, will advance the overall interest of the Commonwealth because it advances the energy policies of the General Assembly. Section 67-101 of the Virginia Code establishes the Commonwealth's energy objectives, which include the increasing reliance on sources of energy that are less polluting than traditional energy resources. Similarly, the Commonwealth's energy policy, set forth in Va. Code § 67-102, includes the promotion of technologies that generate electricity without contributing to greenhouse gas emissions. In addition, the RGP Program will allow the Company to analyze how, and if, third party ownership of non-dispatchable renewable generation facilities furthers the goals of the Virginia Governor's office. Governor McAuliffe has made energy diversity one of the cornerstones of the "New Virginia Economy."<sup>6</sup> On May 27, 2014, Governor McAuliffe created the Virginia Energy Council, which is charged with, among other duties, developing strategies to increase the diversity of energy used to power Virginia and to increase Virginia's renewable energy economy.<sup>7</sup> The RGP Program, if successful, could contribute to Virginia's energy diversity by encouraging the development of renewable generation in Appalachian's service territory by third parties and providing its customers an alternative means to access that generation.

---

<sup>6</sup> Governor Terence R. McAuliffe, *New Virginia Economy*, 10 (Dec. 5, 2014), available at <https://governor.virginia.gov/media/3501/new-virginia-economy-12052014.pdf>.

<sup>7</sup> Exec. Order No. 16 (Va. May 27, 2014), available at <https://governor.virginia.gov/media/3344/eo-16-establishing-the-virginia-energy-council.pdf>.

WHEREFORE Appalachian Power Company respectfully requests that the Commission approve the Experimental Rider R.G.P.

15042005

Respectfully submitted,

APPALACHIAN POWER COMPANY

By 

Counsel

April 17, 2015

James R. Bacha (VSB #74536)  
Hector Garcia (VSB #48304)  
AMERICAN ELECTRIC POWER SERVICE CORPORATION  
1 Riverside Plaza  
Columbus, Ohio 43215  
Tel: 614-716-3410; Fax: 614-716-1613  
[jrbacha@aep.com](mailto:jrbacha@aep.com)  
[hgarcia1@aep.com](mailto:hgarcia1@aep.com)

Noelle J. Coates (VSB #73578)  
HUNTON & WILLIAMS LLP  
951 East Byrd Street  
Richmond, Virginia 23219-4074  
804-788-8718; fax 804-788-8218  
[ncoates@hunton.com](mailto:ncoates@hunton.com)

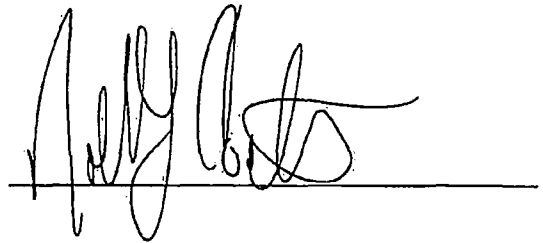
*Counsel for Appalachian Power Company*

**CERTIFICATE OF SERVICE**

I hereby certify that on this 17<sup>th</sup> day of April 2015 a true copy of the foregoing Application of Appalachian Power Company as delivered by hand or mailed, first-class, postage prepaid, to the following:

William H. Chambliss, Esq.  
State Corporation Commission  
Tyler Building, 10<sup>th</sup> Floor  
1300 E. Main Street  
Richmond, Virginia 23219

C. Meade Browder, Jr., Esq.  
Division of Consumer Counsel  
Office of Attorney General  
900 E. Main Street, 2<sup>nd</sup> Floor  
Richmond, Virginia 23219

A handwritten signature in black ink, appearing to read "W. H. Chambliss", is written over a horizontal line.

**DIRECT TESTIMONY OF  
WILLIAM K. CASTLE  
FOR APPALACHIAN POWER COMPANY  
IN VIRGINIA S.C.C. CASE NO. PUE-2015-\_\_**

1   **Q.   PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND POSITION.**

2   A.   My name is William K. Castle. My business address is 1051 E. Cary St, Suite 1100,  
3       Richmond, VA. I am the Director of Regulatory Services for Appalachian Power  
4       Company VA/TN.

5   **Q.   PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND**  
6       **BUSINESS EXPERIENCE.**

7   A.   I earned a Bachelor of Science degree in Mechanical Engineering from Tulane University  
8       in 1988, and a Masters of Business Administration degree from the University of Texas –  
9       Austin in 1998. I hold the Chartered Financial Analyst (CFA) designation. I have  
10      worked in the utility industry since 1998, beginning with the Columbia Energy Group,  
11      Herndon, Virginia, where I held positions in financial planning and corporate finance.  
12      Subsequent to the acquisition of Columbia Energy Group by Merrillville, Indiana based  
13      NiSource in 2000, I performed financial planning and analysis functions. Since 2004,  
14      and prior to my current position, I was employed by AEP in Corporate Planning and  
15      Budgeting. Assignments included resource planning and demand-side management  
16      analysis, which encompasses Energy Efficiency and Demand Response. I have been in  
17      my current position since July, 2014.

18   **Q.   HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY AS A WITNESS**  
19       **BEFORE ANY REGULATORY COMMISSION?**

20   A.   Yes. I presented testimony on behalf of APCo before the Virginia State Corporation  
21       Commission in Case Nos. PUE-2009-00023, PUE-2014-00026 and PUE-2014-00039. I

1 have also presented testimony for Indiana Michigan Power Company, Public Service  
2 Company of Oklahoma, and Ohio Power. I have testified in the states of Ohio,  
3 Oklahoma, Indiana, West Virginia, Arkansas, and Virginia.

4 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?**

5 A. I am supporting the Company's proposed Renewable Generation Purchase Program  
6 (RGP Program) Program, which is offered through a voluntary rider, the Experimental  
7 Rider R.G.P. (the Rider or Rider R.G.P.). Rider R.G.P. allows a non-residential customer  
8 (the Customer) to receive market-based credit for 100% of non-dispatchable generation  
9 sited on or adjacent to its facilities. Higher education customers may apply for  
10 aggregation of meters for the purpose of this Program. Third-party ownership of  
11 generators is facilitated through the use of a non-dispatchable purchase power agreement  
12 (PPA). While the customer remains on its own tariff schedule for 100% of its  
13 consumption, the customer is credited for 100% of the generation: a "buy all – sell all"  
14 arrangement. Rider R.G.P. is designed to provide a market based compensation  
15 mechanism for the energy, and generation and transmission capacity that is provided by  
16 the generator while keeping rates neutral for other customers.

17 **A. Overview of RGP Program and the Rider R.G.P.**

18 **Q. DESCRIBE THE BENEFITS APCO EXPECTS TO DERIVE FROM THIS**  
19 **PROGRAM.**

20 A. The RGP Program will help the Company address its customers' interests in purchasing  
21 non-dispatchable renewable energy and will provide the Company the opportunity to  
22 gather valuable information about the impact of intermittent distributed generation on its  
23 system. It also provides the following advantages over net metering: it provides the

1 Company with a source of energy that is essentially market-based; it minimizes the rate  
2 impact for other customers; and it allows customers who wish to be “green” to have that  
3 generation located at their site.

4 **Q. DESCRIBE THE TRANSACTION THAT RIDER R.G.P. WILL ENABLE.**

5 A. The Rider will enable participating customers to have the benefit of renewable  
6 generation, get market-based credit for it, while the Company, in effect, will be  
7 purchasing energy and capacity at market prices. Rider R.G.P, in conjunction with an  
8 executed PPA, will allow the Company to purchase the energy produced by a renewable  
9 generator (the Facility) located on or adjacent to the customer’s site but owned and  
10 operated by a third-party (the Developer). The Customer pays APCo for the energy  
11 produced by the Facility (the Output) at an amount equal to the amount APCo pays to the  
12 Developer. The Customer remains on its tariff schedule for 100% of its requirements.  
13 The Customer is credited using a market-based mechanism for the Output. Keeping the  
14 Customer on its appropriate tariff schedule, while compensating it for the Output using a  
15 market-based mechanism, is expected to largely neutralize any rate impact to other  
16 customers.

17 **Q. HOW WILL THE CUSTOMER CREDIT BE CALCULATED?**

18 A. The customer credit will have three components: energy, generation demand, and  
19 transmission demand. The hourly energy production of the generator will be calculated  
20 at the PJM system hourly cost at the Appalachian pricing point.<sup>1</sup> The generation capacity  
21 credit will be measured by comparing the Facility’s generation at the time of the PJM  
22 system peaks and similarly, credits for transmission capacity will be made after

---

<sup>1</sup> The Appalachian pricing point will be operational June 1, 2015.

1 determining the system output at the time of monthly peaks that determine the  
2 Company's share of the PJM Network Integration Transmission System (NITS) rate.  
3 Company Witness Sebastian discusses the calculation of the customer credit in detail.

4 **Q. WHY ARE HIGHER EDUCATION CUSTOMERS ALLOWED TO**  
5 **AGGREGATE LOADS FROM MULTIPLE METERS TO DETERMINE AN**  
6 **ALLOWABLE GENERATOR SIZE?**

7 A. Many higher education customers have a desire to generate on-site, renewable energy to  
8 serve a sizable portion of their aggregate load. Due to the fact that many institutions of  
9 higher education that have expanded their facilities over many years, their load is  
10 typically served by several or many meters across a relatively large contiguous (or semi-  
11 contiguous) physical area, it is practical to allow aggregation so that a single meter size  
12 does not limit the allowable generation.

13 **Q. WHY ARE INSTALLATIONS LIMITED TO THE SIZE OF THE LOAD?**

14 A, Generators are limited to the size of the load to avoid the need to upgrade distribution  
15 infrastructure at an unknown cost to accommodate a large amount of energy, potentially,  
16 flowing backward through the system.

17 **Q. ARE THESE RESOURCES INCLUDED IN THE COMPANY'S MOST RECENT**  
18 **INTEGRATED RESOURCE PLAN?**

19 A. The Company's March 2014 IRP included solar resources, both utility scale and  
20 distributed. While distributed resources are not counted as "supply" resources by PJM,  
21 the impact on the resource requirements of the Company are affected in a parallel way.  
22 Customer sited distributed resource impacts are realized through the impact the  
23 generation has on the PJM-coincident peaks of the entire APCo system. Reductions in



1 system load take four years to manifest in a reduced system requirement. There is only a  
2 one-year lag to realized reduced transmission expense that results from a distributed  
3 generator.

4 **Q. WHAT IS THE PURPOSE OF THE RENEWABLE PURCHASE POWER**  
5 **AGREEMENT?**

6 A. The Developer, the Customer and APCo will sign the PPA, which will establish the price  
7 that APCo pays the Developer for the Output. The PPA will also contain terms that  
8 govern the relationship between the Developer, APCo and the Customer.

9 **B. The RGP Program and Other Appalachian Initiatives and Programs**

10 **Q. HOW IS RIDER R.G.P. DIFFERENT FROM THE COMPANY'S OTHER**  
11 **RENEWABLE TARIFFS AND INITIATIVES?**

12 A. The Facility must be located on or adjacent to the customer's location which allows for a  
13 tangible display of environmental stewardship – a key customer desire that cannot be met  
14 through the Company's Renewable Power Rider, for example. In addition, unlike other  
15 programs, the RGP Program allows for and enables third-party ownership of a generator,  
16 since APCo will purchase the Output pursuant to the terms of a purchased power  
17 agreement from the Developer, with concomitant reimbursement from the Customer.  
18 Further, the credit for production will include a transmission capacity credit, which is not  
19 included in Cogen/SPP or the net-metering program. Because the Rider requires that the  
20 Customer remain on its applicable schedule, no fixed costs for that schedule are avoided,  
21 and there is no cost-shifting to other customers. Finally, unlike the Cogen/SPP Rider,  
22 which has no limit on generator size, the Facility must be sized no larger than the  
23 applicable load, which can be aggregated for some customers.

1    **Q.    WILL THIS RIDER REPLACE NET METERING?**

2    A.    No. Participation in the net metering tariff remains open to eligible customers, but a  
3           customer cannot participate in the Rider R.G.P. and the net metering rider  
4           simultaneously.

5    **Q.    IS THIS PROGRAM COUNTED TOWARDS THE 1% “NET METERING” CAP?**

6    A.    No. This program is designed to be separate and distinct from net metering.

7    **C.    Cost Recovery and Impact on Non-Participating Customers**

8    **Q.    HOW WILL THE COMPANY RECOVER THE COSTS OF THE PROGRAM?**

9    A.    Net costs of the program will be recovered through the fuel factor. Customer credits for  
10          energy and capacity, which mirror the market based costs for energy and capacity are not  
11          conceptually different from what is currently included in fuel from the Company’s wind  
12          contracts. These costs should be largely offset with reduced purchases and/or increased  
13          off-system sales resulting in a fuel factor that is materially unchanged as a result of the  
14          rider.

15   **Q.    HOW IS THE RATE IMPACT TO OTHER CUSTOMERS NEUTRALIZED?**

16   A.    Because the Customer remains on its appropriate tariff schedule, the Customer will  
17          continue to pay all the costs it would incur without the presence of the Facility. The  
18          market based cost of the Facility’s production is paid by all customers but is  
19          simultaneously offset by a requirement to purchase less, or the ability to sell more energy  
20          and capacity at a cost that is expected to be comparable.

1   **Q.   DO YOU EXPECT OTHER CUSTOMERS WILL BE NEGATIVELY IMPACTED**  
2       **FROM THE COSTS OF THIS PROGRAM THAT ARE RECOVERED**  
3       **THROUGH THE FUEL FACTOR?**

4   A.   No. The costs included in the fuel clause are expected to be comparable to the costs that  
5       APCo would have incurred to purchase that energy in the market, or, conversely, the  
6       value that APCo would receive for excess energy sold into the market. Thus, these  
7       credits are expected to be revenue neutral from the perspective of non-participating  
8       customers. The credit for transmission capacity is intended to mirror the reduced  
9       allocation of transmission capacity costs that resulted from the Facility's Output during  
10      the monthly transmission peaks that form the basis for the PJM cost allocation. Over  
11      time, generation capacity requirements should be reduced as the Facility affects the peak  
12      load.

13   **Q.   WHAT COSTS OF THE R.G.P. PROGRAM WILL NOT BE FULLY OFFSET**  
14       **WITH AVOIDED COSTS?**

15   A.   Because a credit for generation that occurs coincident with the PJM peaks that determine  
16       APCo's capacity obligation is given, but capacity is not readily transacted, there will not  
17       be an off-setting reduced capacity cost in the short-term. However, as the Output results  
18       in a potential reduced peak load for APCo, and in turn, capacity obligation in PJM, the  
19       Company will be required to purchase or carry less capacity, resulting in an off-setting  
20       avoided cost over time.

21   **Q.   DOES THIS CONCLUDE YOUR TESTIMONY?**

22   A.   Yes.

**DIRECT TESTIMONY OF  
JENNIFER B. SEBASTIAN  
FOR APPALACHIAN POWER COMPANY  
IN VIRGINIA S.C.C. CASE NO. PUE-2015-\_\_**

1   **Q.   PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND POSITION IN THE**  
2       **COMPANY.**

3   A.   My name is Jennifer B. Sebastian. My business address is Three James Center, Suite  
4       1100, 1051 East Cary Street Richmond, Virginia 23219. I am employed by Appalachian  
5       Power Company as a Regulatory Consultant Principal VA/TN.

6   **Q.   PLEASE DESCRIBE YOUR EDUCATIONAL AND PROFESSIONAL**  
7       **BACKGROUND.**

8   A.   I received my Bachelor of Science degree in Economics from St. Bonaventure University  
9       in 1991. In 1991, my professional career began as a Research Assistant for Moody's  
10      Investors Services in New York, New York. In 1994, I accepted the position of Cash  
11      Management Analyst at Resource Mortgage Capital, Inc. located in Glen Allen, Virginia.  
12      I was primarily responsible for the daily reconciliation of cash accounts and daily  
13      borrowing activity for the real estate investment trust. In 1996, I accepted the position of  
14      Cash Manager for the mortgage operating division, which was later sold to Dominion  
15      Capital, Inc. In 1999, I was promoted to Assistant Treasurer where my primary duties  
16      included bank facility negotiation, documentation, and bank facility compliance. In 2001,  
17      I assisted in the treasury responsibilities necessary for the mortgage operating division to  
18      become a publicly traded corporation. In 2002, I was promoted to Treasurer of Saxon  
19      Capital, Inc. and was accountable for liquidity reporting, cash forecasting, treasury  
20      controls, corporate capital requirements and cash account reconciliations. In 2008, the  
21      company was acquired and as a result, I oversaw the treasury activities necessary to  
22      facilitate this transition. In 2008, I accepted the position of Regulatory Consultant with

Appalachian Power Company. In 2014, I was promoted to Regulatory Consultant  
Principal VA/TN.

**Q. WHAT ARE YOUR PRINCIPAL AREAS OF RESPONSIBILITY?**

A. My principal areas of responsibility include implementing approved rates and  
coordinating new rate designs, quantitative analysis of regulatory matters, preparation of  
specific Virginia State Corporation Commission (Commission) financial filings, and  
investigation of regulatory matters.

**Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE ANY REGULATORY  
COMMISSIONS?**

A. Yes. I testified before this Commission in the Company's first Environmental Rate  
Adjustment Clause (E-RAC) proceeding, Case No. PUE-2011-00035 and the Company's  
most recent biennial proceeding, Case No. PUE-2014-00026. Additionally, I submitted  
testimony in the Company's second E-RAC proceeding, Case No. PUE-2013-00010 and  
the Company's second T-RAC proceeding, Case No. PUE-2013-00111.

**Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

A. The purpose of my testimony is to explain in detail how the experimental Renewable  
Generation Purchase (RGP) Program and the Experimental Rider R.G.P. work and  
sponsor the rate design and billing process proposed in Experimental Rider R.G.P.

**Q. DO YOU SPONSOR ANY EXHIBITS OR SCHEDULES?**

A. Yes, I am also sponsoring the following exhibits:

- (1) APCo Exhibit No. \_\_\_\_ (JBS) Schedule 1 – Experimental Rider R.G.P.
- (2) APCo Exhibit No. \_\_\_\_ (JBS) Schedule 2 – Sample Bill

1     **Q.     PLEASE DESCRIBE EXPERIMENTAL RIDER R.G.P.**

2     A.     Through the voluntary Experimental Rider R.G.P. (attached as APCo Exhibit No\_\_ (JBS)  
3           Schedule 1), a participating, non-residential customer served under a Standard Schedule  
4           (Customer) can receive credit for the energy and capacity (Output) generated from a non-  
5           dispatchable renewable energy resource sited on or adjacent to the Customer's property  
6           (Facility) but owned and operated by a third party (Developer). The Customer would  
7           continue to purchase full service under its existing Standard Schedule.

8     **Q.     EXPAND ON THE STRUCTURE OF THE EXPERIMENTAL RIDER R.G.P.**

9     A.     Experimental Rider R.G.P. is available to eligible non-residential customers who desire to  
10           place non-dispatchable renewable generation on or adjacent to their metered account  
11           property. To participate, the Customers must independently seek out the Developer, who  
12           will own, and potentially maintain or operate the Facility. Experimental Rider R.G.P.  
13           provides for a charge and credit on the Customer's bill related to the energy and capacity  
14           associated with the Facility. A negotiated purchase power agreement will detail the terms  
15           for the Developer's sale of the Output to the Company and the associated payment from  
16           the Customer to the Company, as well as performance terms the Company requires in such  
17           an arrangement.

18    **Q.     DISCUSS THE APPLICABILITY AND AVAILABILITY PROVISIONS OF THE**  
19    **EXPERIMENTAL RIDER R.G.P.**

20    A.     The Facility must be sited on or adjacent to the Customer's metered account property. It  
21           must be non-dispatchable renewable generation with nameplate capacity between 250 kW  
22           and 2,000 kW. The Facility must be sized so as to not exceed the capacity and energy  
23           requirements of the Customer's capacity and energy load under its Standard Schedule  
24           account for the last twelve months. The Facility must be interconnected and operated in  
25           parallel with the Company's distribution facilities in accordance with the Distribution

1 Interconnection Rider (Rider D.I.R.). The Customer is required to remain on a non-  
2 residential Standard Schedule rate throughout the term of the purchase power agreement.

3 The Rider is designed to terminate for new customers on June 1, 2017 or upon contracting  
4 25 megawatts of nameplate capacity, whichever is sooner. Enrolled Customers are  
5 expected to participate relative to the terms of the purchase power agreement, which is  
6 anticipated to be a period of five to fifteen years.

7 **Q. DESCRIBE HOW EXPERIMENTAL RIDER R.G.P. WILL WORK IN**  
8 **CONJUNCTION WITH A CUSTOMER'S STANDARD RATE SCHEDULE.**

9 A. As a participant in the RGP Program, the Customer will continue to purchase energy and  
10 capacity under its Standard Rate Schedule. Additionally, the Company agrees to credit the  
11 customer at the capacity and energy costs detailed in Experimental Rider R.G.P for the  
12 Output of the Facility. The Customer's bill will include a charge equal to the amount that  
13 Appalachian pays the Developer for the Output, which is based upon the negotiated rate  
14 with the Developer for the Output produced from the Facility as detailed in the purchase  
15 power agreement. The differential between the credit the Customer receives through the  
16 Experimental Rider R.G.P. and its monthly payment related to the Output, pursuant to the  
17 purchase power agreement, will either be the obligation of or benefit to the Customer.

18 **Q. HOW WILL CHARGES AND CREDITS ASSOCIATED WITH EXPERIMENTAL**  
19 **RIDER R.G.P. APPEAR ON THE CUSTOMER'S BILL?**

20 A. At the end of each billing period, the amount of energy and capacity that the Customer  
21 purchased under its Standard Rate Schedule, the credit amount of energy and capacity the  
22 Company purchased under Experimental Rider R.G.P. and the payment amount that is  
23 required to be paid to the Developer by the Company under the terms of the purchase  
24 power agreement will appear on the Customer's bill. An example is provided as APCo  
25 Exhibit No\_\_ (JBS) Schedule 2.

1 Q. PLEASE DISCUSS THE COMPONENTS ASSOCIATED WITH THE  
2 COMPANY'S PAYMENT (CREDIT) TO THE CUSTOMER UNDER  
3 EXPERIMENTAL RIDER R.G.P.

4 A. Although the payment terms of the purchase power agreement are as negotiated between  
5 the Developer and the Customer, the terms governing the Company's credit to the  
6 Customer for the Facility's Output are detailed in Experimental Rider R.G.P. First, the  
7 energy credit will be equal to the Facility's hourly production of energy in kWh as  
8 measured by the interval meter(s) multiplied by the applicable Real Time PJM LMP  
9 hourly energy rate at the Appalachian Power Company pricing point of the AEP load  
10 zone.<sup>1</sup> Second, a capacity credit stated as \$/kW per month will be calculated based on the  
11 performance of the Facility during most recent 5 coincident peaks as determined by PJM  
12 and the capacity benchmark rate as determined in the proceeding on the Company's  
13 renewable portfolio standard rate adjustment clause, Case No. PUE-2015-00034. Finally,  
14 a transmission capacity credit will be based on the performance of the Facility during the  
15 AEP 12 coincident peaks. The benchmark rate will be based on the Company's  
16 proportionate share of the Network Integration Transmission System rate. If historical  
17 interval metering data is not yet available to determine the Facility's performance for the  
18 purposes of calculating both the capacity credit and transmission capacity credit, the  
19 Company proposes to set the capacity performance amount to thirty-five percent of the  
20 Facility's nameplate capacity and the transmission performance amount to ten percent of  
21 the Facility's nameplate capacity respectively.

22 <sup>1</sup> The Appalachian Company pricing point will be operational June 1, 2015.



1       The Company proposes that capacity and transmission rates and the respective generator  
2       capacity performance amounts be updated for each customer every July.

3   **Q.   DOES THE COMPANY RETAIN THE RENEWABLE ENERGY CREDITS**  
4       **(“RECS”) ASSOCIATED WITH THE OUTPUT OF THE FACILITY?**

5   A.   No, the Company credits the Customer for the Facility’s Output using a market-based rate  
6       approach that does not include compensation for the value of RECs. As described in  
7       Experimental Rider R.G.P., “The Company agrees to relinquish any interest in [RECs]  
8       and all environmental attributes associated with the Eligible Generator output.”

9   **Q.   WHAT TECHNOLOGY IS REQUIRED TO SUPPORT EXPERIMENTAL RIDER**  
10       **R.G.P.?**

11   A.   Experimental Rider R.G.P. requires interval data recorder metering for billing purposes.  
12       When metering voltage for the Facility is different from the Company’s delivery voltage,  
13       metering requirements and charges shall be determined specifically for each case. Any  
14       metering enhancements or upgrade costs associated with this experimental rider shall be  
15       borne by the Customer.

16   **Q.   DOES THIS CONCLUDE YOUR TESTIMONY?**

17   A.   Yes, it does.

**APPALACHIAN POWER COMPANY**

**VA. S.C.C. TARIFF NO. 25**

**EXPERIMENTAL RIDER R.G.P.  
(Renewable Generation Purchase Rider)**

**AVAILABILITY OF SERVICE**

Available on a voluntary basis for new or existing non-residential customers who take Standard Service from the Company and desire to enter into a purchase power agreement with the Company for the purchase of the output from a non-dispatchable renewable generator (Facility) as further defined below. This Schedule is closed to customers who take service under Schedule COGEN/SPP or Rider N.M.S. (or have long term negotiated agreements for distributed generation). The availability of this Rider is limited to an aggregate 25 MW of Eligible Generator nameplate capacity. This Experimental Rider will be closed to new customers after the aggregate 25 MW cap is reached or June 1, 2017, whichever is sooner. For the purposes of this Rider, a Facility meets the following criteria:

- (a) A non-dispatchable generator that uses as its sole energy source solar power, wind power, aerobic or anaerobic digester gas, where "dispatchable" means that a generator is capable of modifying its output upon request;
- (b) Is owned by a third party ("Developer") that the Customer has independently contracted with to own or both own and operate;
- (c) Is located on the same land as the Customer's metered account that will purchase the Facility output or on land that is adjacent to the Customer;
- (d) Is connected to the Customer's wiring on the Customer's side of the interconnection with the Company's facilities;
- (e) Has a nameplate capacity of at least 250 kW<sub>dc</sub>, but not more than 2,000 kW<sub>dc</sub>;
- (f) Is interconnected and operated in parallel with the Company's distribution facilities in accordance with Rider D.I.R.; and
- (g) Provides output that is no greater than 100% of the energy and capacity requirements associated with Customer's Standard Schedule metered account during the previous 12 months. Certified Institutions of Higher Education may apply to have APCo consider their accounts in aggregate for the purposes of this requirement.

**PROGRAM DESCRIPTION**

Experimental Rider R.G.P. offers customers the opportunity to purchase renewable energy supplied from Facility while at the same time receiving a market based rate credit on Customer's bill from the Company for the value of the Facility output.

**CONDITIONS OF SERVICE**

1. Customer will be charged under their appropriate Standard Service Schedule (which includes any current or future riders and surcharges under the terms and conditions of the Standard Service Schedule) for their total load requirements.
2. The Company, the Developer, and Customer shall execute a contract ("Purchase Power Agreement"), the form of which will be provided by the Company that details requirements associated with the Company's supply of renewable energy from the Developer to be delivered under this Rider to the Customer. Customer must fully compensate Company at cost for the purchase of the renewable energy output of the Facility no less than monthly. The Developer must also be a signatory to the Purchase Power Agreement. The Company agrees to relinquish any interest in Renewable Energy Credits ("REC's") and all environmental attributes associated with the Facility output.

Issued:  
Pursuant to  
Dated:  
Case PUE-2015-000XX

Effective:

**APPALACHIAN POWER COMPANY**

**VA. S.C.C. TARIFF NO. 25**

**EXPERIMENTAL RIDER R.G.P.  
(Renewable Generation Purchase Rider)**

**CONDITIONS OF SERVICE-cont.**

3. The Company agrees to provide a Renewable Output Credit to the customer each month for the market based value of the Facility output as defined below.
4. The Facility shall be separately metered by an interval meter or meters to allow the Company to separately measure the Customer's total load. The incremental cost of any interval metering, communications equipment or other facility construction or upgrades required for service under this Rider beyond that normally provided under the applicable Standard Service Schedule shall be borne by the customer.

**RENEWABLE OUTPUT CREDIT**

The Renewable Output Credit will consist of the sum of the following three components:

1. The energy credit will be equal to the Facility's hourly production of energy in kWh as measured by the interval meter(s) multiplied by the PJM Real time LMP hourly rate at the applicable Company pricing point, stated in \$/kWh. Beginning June 1, 2015, the applicable pricing point will be the Appalachian Company pricing point (AEPAPT).
2. The generating capacity credit is equal to the impact of the Facility on the Company's generation capacity requirements.
  - a. The Credit Rate for the generation capacity during a billing month shall be equal to the capacity benchmark rate as determined in the Company's most recent RPS filing stated in \$/kW-month. The benchmark rate will be updated in the respective billing month that such benchmark rate changes for the Company (typically June of each year).
  - b. If historical interval metering data is available to determine the Facility's output during the 5 highest coincident peak (CP) hours (as determined by PJM) for the most recently completed calendar year, then the generation Capacity Benefit provided for the ensuing year beginning in June and ending in May shall be the average of the output during the 5 CP hours. Otherwise, the generation capacity will be set to twenty-five percent of the Eligible Generator's nameplate capacity until sufficient interval metering data is available.

The monthly generating capacity credit is equal to the Credit Rate (a) multiplied by the impact of the Facility (b).

3. The transmission capacity credit is equal to the impact of the Facility on the Company's allocation of PJM transmission costs, as determined by the Company. The price to be paid for the transmission capacity provided to the Company during each billing month of a calendar year shall be equal to the Facility's average production during the time of AEP East Transmission Zone coincident monthly peaks from the preceding year ended October 31 ("12 CP Production") multiplied times the prevailing Network Integration Transmission Service Monthly rate, stated in \$/kW-month. If historical interval metering data is not available to determine the 12 CP Production, the value will be set to ten percent of the Facility's nameplate capacity until sufficient interval data is available.

Issued:  
Pursuant to  
Dated:  
Case PUE-2015-000XX

Effective:

15042005

APPALACHIAN POWER COMPANY

VA. S.C.C. TARIFF NO. 25

**EXPERIMENTAL RIDER R.G.P.  
(Renewable Generation Purchase Rider)**

**BILLING**

In addition to billing under the applicable Standard Schedule, Customer's bill will include three additional items associated with this Rider.

1. Customer will receive a charge equal to the Company's cost of purchasing the Facility output as detailed in the Purchase Power Agreement.
2. Customer will receive the Renewable Output Credit as detailed in this Rider.
3. A Program Charge of \$30 per month for billing, administration and communications required to implement and administer the program.
4. Bills are due upon presentation and payable by mail, checkless payment plan, electronic payment plan, or at authorized payment agents of the Company to be received by the Company within twenty (20) days of the bill preparation date. A charge of 1½% per month will be applied to any account balances, excluding local consumer utility taxes, not received by the Company by the next bill preparation date.

**TERM**

Customers who volunteer to participate in this Experimental Rider are required to enter into a Purchase Power Agreement with the Company for not less than a five-year period and remain on the appropriate Standard Schedule and this Experimental Rider R.G.P for the term of the Purchase Power Agreement.

**SPECIAL TERMS AND CONDITIONS**

This Rider is subject to the Company's Terms and Conditions of Standard Service. Customers taking service under this Rider are not eligible to take energy services from a qualified Energy Services Provider during the term of the Purchase Power Agreement.

Issued:  
Pursuant to  
Dated:  
Case PUE-2015-000XX

Effective:

# **SAMPLE ELECTRIC BILL CALCULATION** FOR ILLUSTRATIVE PURPOSES ONLY

VIRGINIA -Appalachian Power Co.

Customer Name  
July Bill

ACCT #

xxx-xxx-xxx-x

Customer Load and Energy per Standard Schedule Tariff

Date	ON - PEAK KW	OFF - PEAK KW	KWH	KVAR	MGS On-Pk Bill KW	MGS Off-Pk Bill KW
July	320.0	0.0	147,000	0.0	320.0	0.0

Billing KWH/KWH	Tariff 25 LGS Sec	Tariff 25 Amount
<b>Generation</b>		
Dem-On Peak	320	\$2,457.80
Energy Charge	147,000	\$1,884.54
G-RAC On Peak	320	\$144.00
G-RAC Energy	147,000	\$91.14
RPS-RAC	147,000	\$0.00
Max Energy Charge	147,000	\$0.00
<b>Transmission</b>		
Fuel Charge	147,000	\$4,577.28
Dem-On Peak	320	\$684.80
Energy Charge	147,000	\$208.74
T-RAC KWH	147,000	\$163.17
<b>Distribution</b>		
Cust Charge	320	\$13.00
Dem-On Peak	320	\$1,257.60
Energy Charge	147,000	\$582.12
SUT Surcharge	147,000	\$17.64
Max Energy Charge	147,000	\$0.00
<b>Tariff Bill</b>		<b>\$11,845.28</b>
Consumption Tax		\$2.00
Utility Tax		\$2.00
<b>Total Monthly Billing</b>		<b>\$11,966.92</b>
<b>Net Cents/KWH</b>		<b>8.14</b>

Bill Information		
Generation Services		
Dem-On Peak	\$2,601.80	
Excess Off-Pk	\$0.00	
Energy Charge	\$1,975.88	\$4,577.28
Fuel Factor		\$4,340.91
Transmission		\$1,056.71
Distribution Services		
Cust Charge	\$13.00	
On-Peak kW	\$1,257.60	
Energy Charge	\$582.12	
SUT Surcharge	\$17.64	\$1,870.36
VA Consumption Tax		\$121.66
Local Consumers Tax		\$0.00
1-Standard Schedule Bill		\$11,966.92

NOT PART OF STANDARD BILL-PROVIDED FOR REFERENCE PURPOSES EXPERIMENTAL RIDER R.G.P. Calculations- July Generator Capacity Size 300kW			
A	B	C	
July Energy Generator Output (kWh)	Generator 12 CP Contribution kW	Generator 5 CP Contribution kW	
33,822.87	52.88	45.02	
(Measured Monthly/ hourly output)	(Measured Yearly)	(Measured Yearly)	
D	E	F	
Energy price based on Generator Hourly Output (\$)	Transmission Company Benefit \$/KWH-Day	Capacity Price \$/KWH-Day	
0.03528	0.03116	0.3422	
Hourly price per PJM	Established Yearly	Established Yearly	
G			
Assumed PPA Energy Price (\$)	0.08		

2- Experimental Rider R.G.P Credit	\$-1,756.23
*Formula = (A*D)-(B*E*31)-(C*F*31)	
3- Purchase Power Agreement Bill	\$2,705.81
**Formula = (A*G)	
<b>Total Customer Bill (1+2+3)</b>	<b>\$12,916.51</b>

APCo Exhibit No. \_\_\_\_\_  
Witness: JBS  
Schedule 2  
Page 1 of 1

589027051